APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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FRANK J. KOZAK
NAVIGATION TECHNOLOGIES CORPORATION
10400 W. HIGGINS RD.
ROSEMONT IL 60018

EXAMINER
COLBERT,E

ART UNIT	PAPER NUMBER
2172	10

DATE MAILED:

12/19/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

☒ Responsive to communication(s) filed on _Oct 10, 2000_ .

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire ___*Three*___ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) _1-22_____ is/are pending in the application.

    Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) _1-22_____ is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

    ☐ All ☐ Some* ☐None   of the CERTIFIED copies of the priority documents have been

        ☐ received.

        ☐ received in Application No. (Series Code/Serial Number) _____ .

        ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    *Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- *SEE OFFICE ACTION ON THE FOLLOWING PAGES* ---

DETAILED ACTION

1.   Claims 1-22 are pending. Claims 1 and 12 have been amended. Claims 1, 11, 12, 16, 18, and 22 are independent claims.

2.   Applicants' response of 10 October 2000 and request for reconsideration has been fully considered and has been entered as Amendment A, paper number 8.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Behr et al (5,808,566), hereafter Behr.

With respect to claim 1, spatially parcelizing data entities into parcels with each parcel of the parcels containing a separate subset of data entities (**column 10, lines 15-25**), and determining sub-areas encompassing some of the geographic features represented by the data entities in the parcel (**column 10, lines 39-44**). Behr did not explicitly teach storing a first index identifying each of the data entities contained in the parcel with each of the sub-areas intersected by the geographic feature represented (**column 12, lines 32-38**). Behr did not explicitly teach storing a first index, however, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to store the first index because it is known in the art that an index can be sorted (alphabetized) without moving the main contents of the data or file. This saves time because the index is smaller and it is possible to maintain multiple indexes to the same data or file.

With respect to claims 2, the first index being a bitmap (**column 15, lines 1-14**)

With respect to claim 3, the sub-areas being a sub-rectangle (**col. 17, lines 38-64 and figure 5**).

With respect to claim 4, this claim is discussed above in claim 1 and rejected for the same reasons as stated above for claim 1.

With respect to claim 5, the parcels storing a second index identifying boundaries of each of the sub-areas (**column 21, lines 40-49**).

With respect to claim 6, Behr did not explicitly teach, the second index is a kd-tree index in **column 15, lines 19-27**, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a kd-tree index for the second index because using a kd-index is one way of ordering parcels by using a depth-first within each parcel type and layer. This provides an ordering similar to Peano-key ordering.

With respect to claim 7, Behr did not teach the second index is stored internally of the parcel, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a second index for storing the parcel internally because an index is well known to one of ordinary skill in the art at the time the invention was made to have the second index for

storing a parcel because an index is a way of sorting and accessing data or files by creating an

alphabetical list of keywords. An index speeds up the retrieval of data from storage.

With respect to claim 8, the data entities represent geographic features encompassing each

of the sub-areas that are approximately equal in number to the data entities representing

geographic features encompassed by each of the other sub-areas (**column 19, lines 15-33**).

With respect to claim 9, Behr did not explicitly teach the data entities represent segments

of roads in the geographic region, however, Behr did teach the data entities represent segments of

streets in the geographic region (**column 1, lines 42-46, column 10, lines 2-9 and lines 17-25**).

With respect to claim 10, determining eight sub-areas (**column 14, lines 19-26**).

With respect to claim 11, identifying a search area in a geographic region (**column 10,**

lines 61-67 and column 11, lines 1-4), identifying a parcel of data in the navigable map database

with the parcel of data containing data entities representing features encompassed within the first

rectangular area within the geographic region with the first rectangular area intersecting the

search area (**column 11, lines 4-17 and column 15, lines 61-67**), using a first index associated

with a parcel of data to identify the sub-rectangles of the first rectangular area that intersect the

search area (**column 15, lines 22-27**), and using the second index associated with a parcel of data

to identify which of the data entities contained in the parcel intersect each of the sub-rectangles

identified by using the first index (**column 21, lines 40-49**). Behr does not explicitly teach an

index, but it would have been obvious to one of ordinary skill in the art at the time the invention

was made to have a first and a second index because indexes are used to speed up the retrieval of

data or files and to access the files or data in a sorted order by creating an alphabetized list of

keywords.

With respect to independent claim 12, identifying a search area in a geographic region

(**column 10, lines 61-67 and column 11, lines 1-4**), identifying the parcels whose data entities

represent features encompassed by a rectangular area intersecting the search area (**column 11,**

lines 4-17 and column 15, lines 61-67), using a first index associated with a parcel of data to

identify the sub-rectangles of the first rectangular area intersecting the search area ... (**column 15,**

lines 22-27), and using the second index associated with a parcel of data to identify the data

entities containing the parcels intersecting the sub-rectangles identified by using the first index

(**column 21, lines 40-49**). Behr does not explicitly teach an index, but it would have been

obvious to one of ordinary skill in the art at the time the invention was made to have a first and a

second index because indexes are used to speed up the retrieval of data or files and to access the

files or data in a sorted order by creating an alphabetized list of keywords.

With respect to dependent claim 13, this claim is rejected on grounds corresponding to

the rejections given above for dependent claim 9.

With respect to claim 14, this dependent claim is rejected on grounds corresponding to the

rejections given above for dependent claim 6. In dependent claim 14, Applicant claims a method

which contains steps corresponding to the method of rejected dependent claim 6.

With respect to dependent claim 15, this claim is rejected on grounds corresponding to the rejections given above for dependent claim 2. In dependent claim 15, Applicant claims a method which contains steps corresponding to the method of rejected dependent claim 2.

With respect to claim 16, the data records are spatially parcelized into a plurality of parcels (**column 3, lines 1-10**), the parcels comprise a separate portion of the data records where the portion of the data records in a parcel represents geographic features encompassed together in an area of the geographic region ... (**column 3, lines 58-67**), a reference to at least one of the groupings of the data records in the parcel (**column 4, lines 20-24**), and the groupings organize the data records in the parcel spatially (**column 4, lines 29-34**). Behr did not teach, an index table of a first type with each associated with a separate one of the parcels or the index table of the first type comprising a separate reference to each data record in the parcel to which the index table is associated, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have an index table of the first type associated with one of the parcels and to comprise a separate reference to the data record in the parcel which the index table is associated because it is assumed the first type is a bitmap index and a bitmap is well known in the art as being a graphics file with each tiny square making up the image (in this case the image would be the parcels) in the index table which is used for sorting the files in an alphabetized order. It would save time by the index table of the first type comprising a separate reference to each data record because the index would be smaller and easier to maintain and the index can be sorted without moving the main contents of the data.

With respect to claim 17, the index tables of the second type comprises: a spatial reference to each separate sub-area ... **(column 19, lines 15-33)**. Behr did not teach, an index table of a second type which are associated with a separate one of the parcels, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have an index table of the second type associated with a separate parcel because it is assumed the second type of index is a kd-tree index and it is well known in the art that a kd-tree index is used as a binary tree for performing spatial searches or a binary search using a data entity identifier. In a tree type of index the data at certain nodes represent divisions of the structure that make it easier to perform a spatial search.

With respect claim 18, data entities which represent a physical feature in the geographic region ... **(column 5, lines 45-53 and lines 59-67, column 6, lines 1-19, and column 19, lines 15-33)**, ... the index associated with each parcel relates to the data entities in the subset ... **(column 12, lines 21-29 and column 14, lines 35-41)**.

With respect to claim 19, the groupings of the subsets are spatially organized **(column 14, lines 46-59)**.

With respect to claim 20, the groupings of the data entities within the parcel include approximately a similar number of data entities ... **(column 17, lines 65-67 and column 18, lines 1-7)**.

With respect to claim 21, the groupings of the data entities in the parcels include data records encompassed within a separate sub-rectangular area (**column 19, lines 34-67 and column 20, lines 1-13**).

With respect to independent claim 22, this claim is rejected on grounds corresponding to the rejections given above for independent claim 16. In independent claim 16, Applicant claims a map database for use in a navigation system which contains steps corresponding to the computer usable medium of rejected independent claim 16.

Response to Arguments

5.   Applicant's arguments filed 10/10/2000 have been fully considered but they are not persuasive.

With respect to Applicants' argument concerning "claims 1-22 not being obvious over the Behr reference for the reason that the (3) criterion, set forth for establishing a case of obviousness, is not met, i.e., with respect to each claim, the prior art reference (i.e., Behr) does not teach or suggest all the elements in the claim" has been considered but are not deemed to be persuasive. A suggestion/ motivation need not be expressly stated in one or all of the references used to show obviousness. *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1025, 226 USPQ 881, 886 (Fed. Cir. 1985); *In re Sheckler*, 438 F.2d 999, 1001, 168 USPQ 716, 717 (CCPA 1971). It is assumed that every reference relies to some extent on the knowledge of persons skilled in the art to complement that which is disclosed therein. Further, the skilled artisan is presumed to know something more about the art than only what is disclosed in the

applied reference/references. In other words, the person having ordinary skill in the art has a level

of knowledge apart from the content of the references. *In re Bode*, 550 F.2d 656, 660, 193

USPQ 12, 16 (CCPA 1977); *In re Jacoby*, 309 F.2d 513, 516, 135 USPQ 317, 319 (CCPA

1962). A conclusion of obviousness is established "from common knowledge and common sense

of the person of ordinary skill in the art without any specific hint or suggestion in a particular

reference." *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

With respect to Applicants' argument concerning "Behr does not disclose a particular

format for the arrangement or organization of the data in the databases used to provide navigation

features to the remote units, the type of index described in Applicants' claim 1, or "storing a first

index" that identifies with respect to each of the data entities contained in a parcel, each "sub-

area" intersected by the geographic feature" has been considered but are not deemed persuasive

because Behr did not explicitly teach, storing a first index identifying each of the data entities

contained in the parcel with each sub-area intersected by the geographic feature in column 12,

lines 32-38, however it would have been obvious to one having ordinary skill in the art at the time

the invention was made to store the first index because it is well known in the art that an index

can be sorted (alphabetized) without moving the main contents of the data or file. This saves time

because the index is smaller and it is possible to maintain multiple indexes to the same data.

With respect to Applicants' argument, "Behr does not disclose "using" the particular types

of indexes or "identifying at least one parcel," "using a first index" or "using a second index" have

been considered but are not deemed persuasive. Behr's "using a first index" is discussed in

arguments above regarding "a first index." Behr did not teach "using a second index," but it

would have been obvious to one having ordinary skill in the art at the time the invention was made

to use a second index because an index is a way of sorting and accessing data or files creating an

alphabetical list of keywords. An index speeds up the retrieval of data from storage. Behr's

"identifying at least one parcel" is interpreted by the Examiner as being taught in column 10, lines

61-65 and column 11, lines 1-4, and column 12, lines 34-38.

With respect to Applicants' argument, "Behr does not disclose a map database having the

type of organization in claim 16, the databases used provide the navigation features to the remote

units is "spatially organized," the "parcels" of the database are associated with an "index table"

that references the "data records" in the "parcel" with a plurality of "spatially organized"

groupings of the plurality of data records within the "parcel," a "data structure means" comprising

(1) "first indices" each of which determine a plurality of sub-areas formed of an area that

encompasses the geographic features represented by the data records ... has been considered but

are not deemed persuasive. Applicants' claim limitations "parcels" and "first indices" (first index)

have been addressed in arguments above. The Examiner interprets Behr's teachings of an "index

table" referencing "data records" in the "parcel" with the plurality of "spatially organized"

groupings of the plurality of data records within the "parcel" or a "data structure means," as being

taught in column 3, lines 1-10 and lines 58-67, and column 4, lines 29-34. Behr did not teach, an

index table associated with parcels in the index table comprising a date record, but it would have

been obvious to one having ordinary skill in the art at the time the invention was made to have an

index table associated with the parcels and to comprise a data record because it is assumed that

the index is a bitmap index and a bitmap is well known in the art as being a graphics file with each

tiny square making up the image (in this case the image would be the parcels) in the index table

which is used for sorting the files in an alphabetized order. It would save time by the index table

comprising a reference to the data record because the index would be smaller and easier to

maintain and the index can be sorted without moving the main contents of the data. It would have

been obvious to one having ordinary skill in the art at the time the invention was made to have a

data structure in a map database because a data structure is well known in the art and is an

organizational scheme, such as a record that can be applied to data to facilitate interpreting the

data or performing an operation such as identifying the data records of the parcels and

determining whether the parcels of data meet the search criterion.

The Examiner carefully drew up a correspondence between each of Applicants' claimed

limitations, what is well known in the art, what is obvious to one having ordinary skill in the art at

the time the invention was made, and one or more referenced passages in Behr. By failing to

address this correspondence, Applicants' have failed to rebut the Examiner's *prima facie* case of

obviousness. The Examiner is entitled to give limitations their broadest reasonable interpretation

in light of the Specification (see below):

2111   Claim Interpretation; Broadest Reasonable Interpretation [R-1]

>CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE INTERPRETATION

During patent examination, the pending claims must be "given the broadest reasonable interpretation consistent
with the specification." Applicant always has the opportunity to amend the claims during prosecution and broad

interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).<

Conclusion

6.   The prior art made of record and not relied upon is considered relevant to applicant's

disclosure.

   Behr et al (5,543,789) taught a computerized database navigation system

   McGrath et al (5,893,113) taught updating a geographic database.

   Cherveny et al (6,047,234) taught a geographic database using feedback.

   Rode (5,565,874) taught a multi-level vehicle highway navigation system.

   Long et al (6,078,864) taught a navigation system with a database of roads.

   Ahrens et al (5,951,620) taught a method for distributing updated geographical data and

   navigation application programs contained on storage media used in vehicle navigation

   systems.

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date

of this final action.

Inquiries

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ella Colbert whose telephone number is (703)308-7064.

The examiner can normally be reached Monday through Thursday from 6:30 a.m. to 5:00

p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Vu, can be reached on (703)305-4393.

Any response to this action should be mailed to:

> Commissioner of Patents and Trademarks
> Washington, D.C. 20231

Or faxed to:

> (703)308-9051, (for formal communications intended for entry).

Or:

> (703)308-5403 (for informal or draft communications, please label

"PROPOSED" or "DRAFT").

> Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal
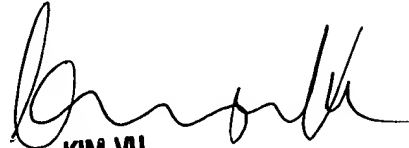> Drive, Arlington, Virginia., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (703)308-9600.

Colbert
December 14, 2000

KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100